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ORIGINAL ARTICLE

REVIEW ARTICLE

CASE REPORT

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ORIGINAL ARTICLE

Thymoma Associated Paraneoplastic Encephalitis: A Potentially Fatal but Treatable Entity

B.L. Kumawat*, Ruchi, Piyush Savaliya**, Mridula Singh****

ABSTRACT

A 20 year old male presented with headache and seizure episodes in SMS Medical College, Jaipur. His chest X-ray and computed tomography revealed a right anterior mediastinal mass. MRI brain revealed T2/FLAIR cortical and subcortical hyperintensities. He underwent Thymectomy and was diagnosed with Type B2 thymoma histologically. The condition of patient improved and he recovered completely and became fully oriented after Thymectomy. Thymoma associated paraneoplastic encephalitis (TAPE) is a rare disease entity having very few case reported worldwide. Hereby, we are reporting a case of paraneoplastic encephalitis associated with thymoma.

Key words: Thymoma, paraneoplastic encephalitis, thymectomy

INTRODUCTION

Paraneoplastic neurological syndromes (PNS) are rare disorders associated with tumor, not caused by direct invasion, metastasis or consequences of treatment. These are found in <1**%** of patients with a malignancy.The neurological symptoms precede the tumor diagnosis in approximately 65% of patients with PNS.50% of patients with thymoma have paraneoplastic neurologic syndromes myasthenia gravis being the most common. There are very few case reports of thymoma-associated paraneoplastic limbic or extralimbic encephalitis that can cause progressive neurologic decline and significant mortality without treatment. We report a case of a thymoma presenting as paraneoplastic encephalitis in a 20 year old male.

Clinical Summary

A previously asymptomatic 20 year old male presented with 20 days history of headache followed by 1 day history of 3 episodes of generalized tonic clonic seizure and altered sensorium. Brain magnetic resonanceimaging (MRI) showed bilateral foci of cortical and subcorticalnonenhancing signal abnormalities on T2-weightedimages (Figure 2). Chest x ray showed mediastinal widening with right hilar mass. Chest computed tomography (CT) revealed a large anterior mediastinal mass (Figure 1) that, on biopsy, showed type B2 thymoma(figure 3). Cerebrospinal fluid detected a predominantly lymphocytic pleocytosis. CSF was planned for antineuronal autoantibodies in the setting of a Thymic neoplasm but could not be done due to financial constraints of family.

Patient was managed with iv antiepileptics, steroids (IV Methyl prednisolone pulse) and IVIG (2gm/kg total dose). However, condition of patient continued to deteriorate, so, emergency Thymectomy was performed after obtaining high risk consent from the family. He started recovering after around 5 post operative days and became fully conscious and oriented at 10^{th} post op day. Repeat MRI brain done two months later showed complete resolution of all lesions (Figure 4). Two years after the operation, there is no evidence of recurrence of tumor (Figure 5) and patient is seizure free presently.

DISCUSSION

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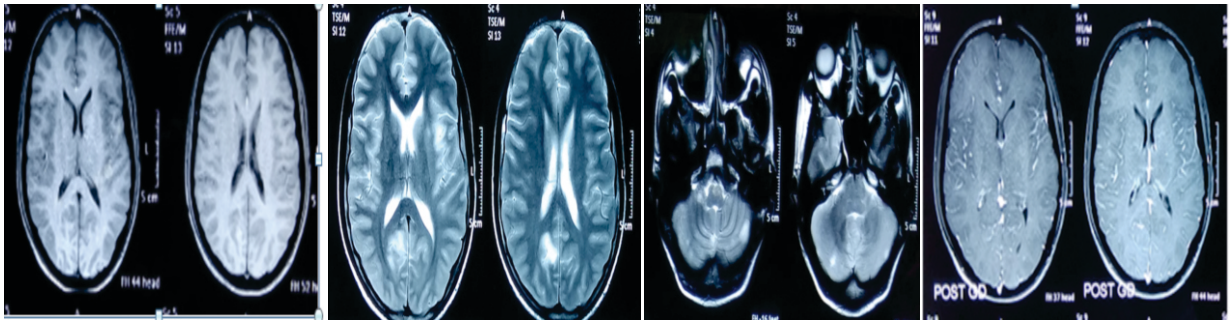

Figure 1 showing MRI brain with T2 hyperintesities involving both cerebral hemispheres and cerebellum with no contrast enhancement.

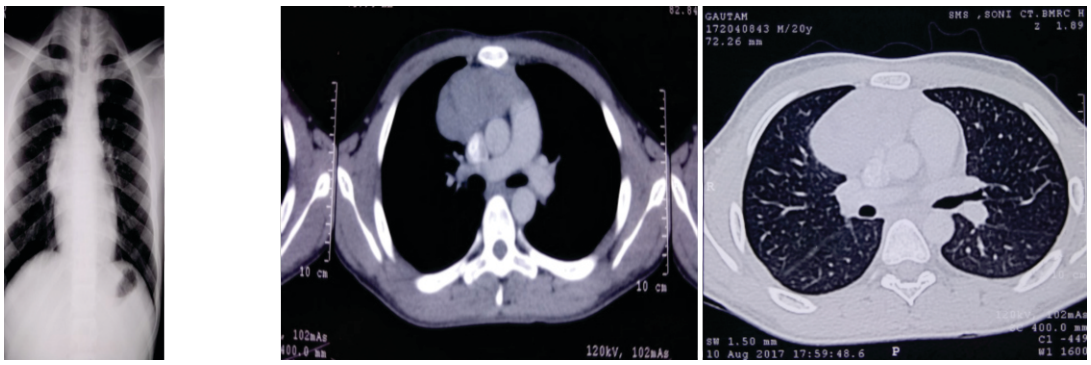

Figure 2 showing preoperative Chest Xray and CT Chest showing anterior mediastinal mass.

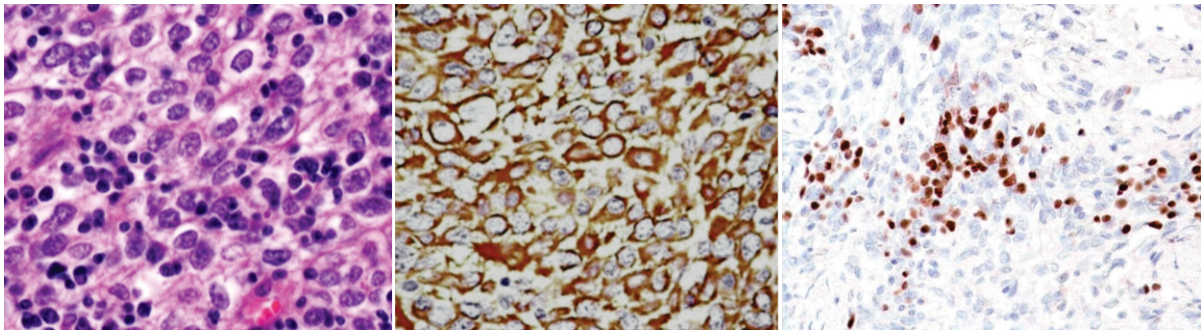

Figure 3 showing histopathology and IHC(pancytokeratin and Tdt positive epithelial cells) suggestive of thymoma

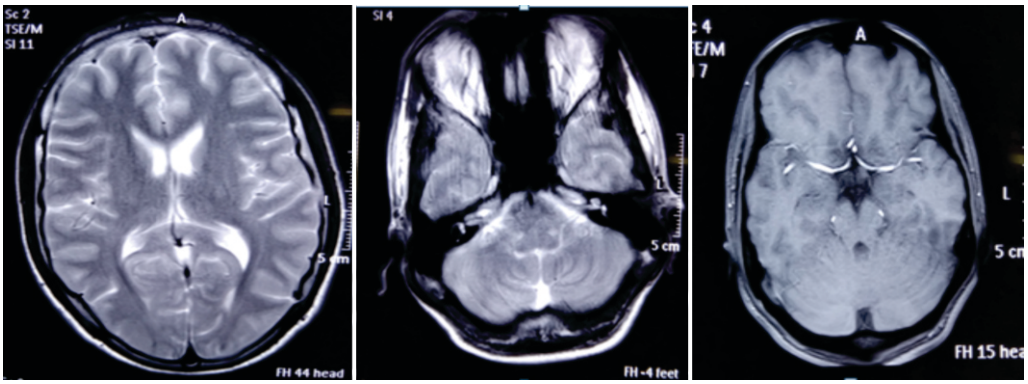

Figure 4 showing resolution of lesions on MRI Brain done 2 months after Thymectomy.

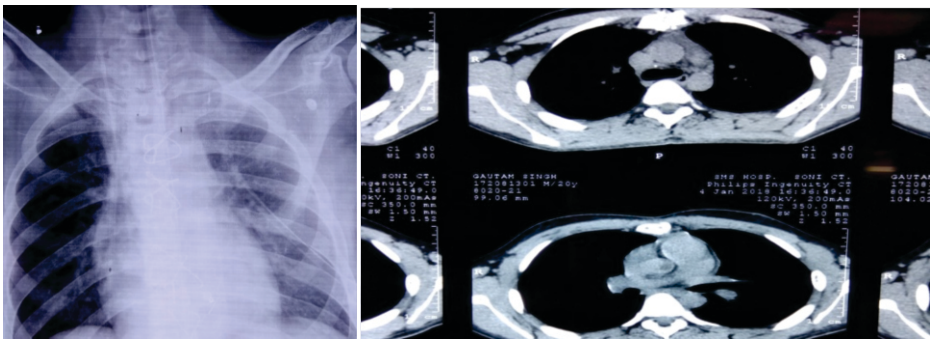

Figure 5 showing post operative Chest Xray and CT chest of the patient after 2 years

Thymoma is the most common type of tumor in the anterior mediastinum. The usual age of presentation is 40- 60 years of age (M=F).Myasthenia gravis is the most common paraneoplastic syndrome associated with thymoma[1]. First case of paraneoplastic encephalitis in the setting of thymic cancer was reported in 1988. Since then, very few case reports of thymoma associated paraneoplastic encephalitis (TAPE) have been reported[2] with no case reported from India. In most patients, neurologic manifestations include memory loss, confusion, and seizures. Seventy percent exhibited bilateral foci of nonenhancing hyperintensity on brain MRI, some appearing weeks after onset of symptoms. The differentials include metastases, primary brain tumors, and infection[2]. The presence of a mediastinal mass and pathologic confirmation of thymoma suggests a paraneoplastic syndrome in our case.Patients with Thymoma-associated encephalitis most commonly have VGKC-complex Abs-LGI1 andCaspr2, withmore likelihood of Caspr2- positivity[3] although other antibodies to CRMP-5, anti GAD and GABA-A Receptor have also been described in literature[4,5]. The diagnosis of TAPE is based on the combination of the Encephalitis syndrome, MRI findings, and detection of antineuronal autoantibodies in the setting of a Thymic neoplasm[2].The limitation of this case is inability to get CSF antineuronal antibodies done owing to non affordability of the family for the same.

Immediate intervention is necessary to manage TAPE in order to prevent progressive neurologic decline and death. Immunotherapy with IgG and corticosteroids will improve neurologic symptoms resulting from inflammatory response, but complete resection of the thymoma confers the best chance at disease-free survival from oncologic as well as paraneoplastic standpoints[6]. Plasmapheresis can be done in refractory cases[7].

It may take weeks to months after Thymectomy for symptom resolution[8]. Outcome is driven more by ongoing neurologic insult than the underlying thymic disease. The mortality rate in TAPE is thirty-three percent, due to the nervous system compromise[9]. Only 21% of patients with TAPE achieve symptom-free survival; all of these patients had complete resection of their thymoma[2].

It is necessary on the part of clinician to make an early link between thymoma and encephalitis which can lead on to immediate intervention in the form of complete thymoma resection giving patient the best chance of disease free survival.

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Dr Raj Kumar Yadav- Senior Professor, CTVS deptt, SMS Medical College and Hospital, Jaipur- for his efficient management

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REVIEW ARTICLE

Monkeypox Disease and Vaccine: A Comprehensive

Monica Jain*, Anil Bhandari, Abhinav Agrawal*****

ABSTRACT

While the world was still recovering from horrors of the Coronavirus disease 2019 (COVID-19), another viral disease, this time the Monkeypox virus, a member of Orthopoxvirus genus[1] of the Poxviridae family started spreading. Monkeypox is a zoonotic infection with rare instances of human-to-human transmission reported worldwide[2].Monkeypox gets its name from the Macaque monkeys in whom this viral infection was first witnessed[3]. Owing to an outbreak in 2022, Monkeypox virus disease which was previously known to be endemic to certain regions of Africa was reported from regions of Europe and western hemisphere[4]. Extensive research and advent of vaccines have been the front- runners in containing the outbreak.

INTRODUCTION

Monkeypox disease is an infectious zoonotic disease caused by Monkeypox virus, a member of Poxviridaefamily[1,2]. It belongs to genus Orthopoxvirus, same as that of Smallpox, Cowpox and Vaccinia virus[5]. Like the other members of Poxviridae family,Monkeypox viruses also are large, enveloped, linear double stranded DNA viruses with a genome size ranging from 130-360kbp[6]. Several animal species are known to be susceptible to the Monkeypox virus like squirrels, Gambian pouched rats, dormice, and non-human primates[2].

Monkeypox virus was first observed in laboratory monkeys in Copenhagen, Denmark in 1958[7]. However the first human case was not reported till 1970 when a 9-month-old boy was found positive for the virus during mass screening for the Smallpox virus in Zaire (now known as Democratic Republic of Congo)[8].

The first case of the recent outbreak of Monkeypox disease was reported on May 6, 2022 in United Kingdom. The outbreak spread out from Central and West Africa to other continents[9]. On July 23, 2022, WHO declared the outbreak a public health emergency of international concern (PHEIC)[10]. As of September 30, 2022, 12 cases of Monkeypox disease have been reported in India in addition to 68,428 confirmed cases in 106 countries worldwide[9].

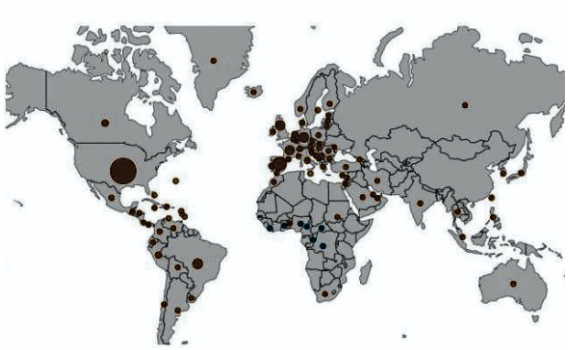

Fig 1: Worldwide distribution of Monkeypox

Photo Credit: /www.cdc.gov/poxvirus/monkeypox/response/2022/world-map

Epidemiology:

Monkeypox disease is originally known to be endemic to Sub-Saharan Africa for hundreds of years with thousands of cases reported annually. The disease became a matter of global concern for public health in 2003, when an outbreak was reported in United States of America linked to infective pet dogs[11]. The natural host and the reservoir of the Monkeypox virus still remains a mystery with studies suggesting both humans and monkeys as incidental hosts.

The Monkeypox virus is known to have two clades: West Africa(WA) clade and the Congo Basin(CB) clade with the latter known to be more virulent. However

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in the current outbreak , West African clade seems to be responsible for the sudden rise of cases in Europe and other parts of the world[12]. Epidemiological studies suggest an R_0 value (degree of transmissibility of disease) ranging from 1.10 to 2.40 for the disease with case fatality rate estimated at 0-3% for West African clade and 0-11% for Congo Basin clade[11].

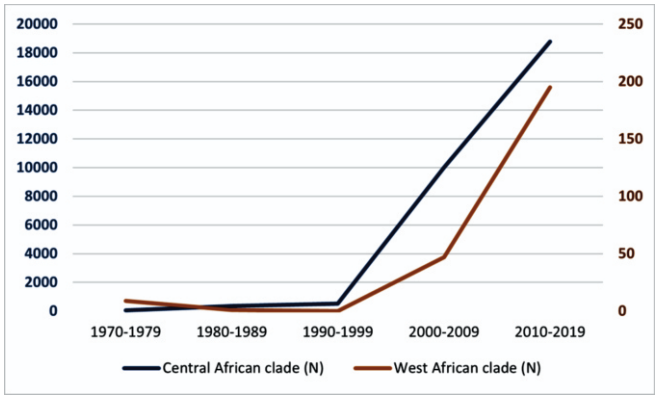

Fig 1: Case distribution of the two clades over the years.

Photo Credit: **The changing epidemiology of human monkeypox—A potential threat? A systematicreview**

Transmission and Pathogenesis:

Monkeypox virus primarily infects invertebrates and lower mammals. Animal-to-human transmission is the chief reason for presence of disease in humans. Animal-to-human transmission can result either from direct contact with blood and body fluids or from cutaneous and mucosal lesions of infected animals[13]. Human-to-human transmission can occur from close contact with respiratory secretions, or skin lesions of an infected person. Transplacental transmission from mother to fetus is also a possibility and may give rise to Congenital Monkeypox disease. Few cases of perinatal transmission have also been reported. The sexual route of transmission is still under evaluation with early reports from certain studies suggesting higher prevalence in men who have sexual contact with other men[11].

The incubation period for the disease ranges from 5-21 days with person being non-contagious throughout this period implying that infection is spread only after symptoms appear. The virus multiplies at the site of inoculation before entering the blood stream. Lesions appear 2-3 days after onset of fever and are mainly maculo-papular in nature. Serum antibodies also become positive by this period[14].

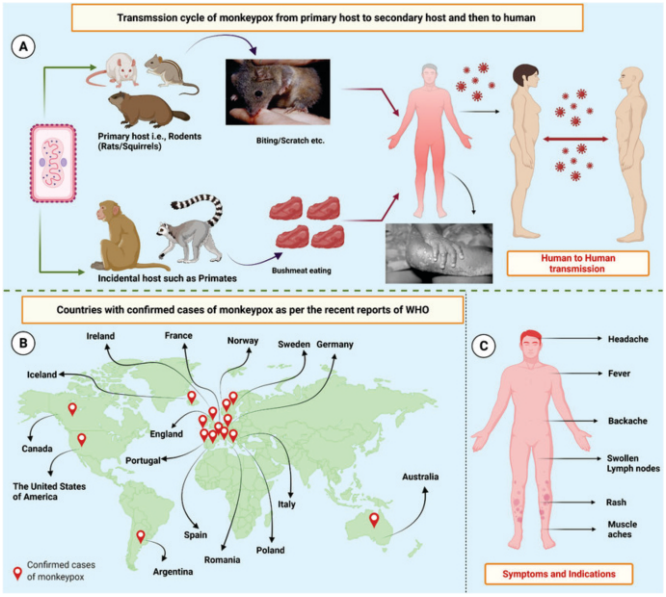

Fig 2: Guide Map to Monkeypox disease

Photo Credit: Emergence of monkeypox: Risk assessment and containment measures ;**June 2022; O.P.Chaudhary et al.**

Clinical Features:

Monkeypox is usually a self-limiting disease with symptoms lasting from 2 to 4 weeks. Severe cases occur more commonly among children and are related to the extent of virus exposure, patient health status and nature of complications. Underlying immune deficiencies like diabetes mellitus and AIDS may lead to more detrimentaloutcomes[14].

The initial five days called invasion period manifests with fever, headache, lymphadenopathy, back pain, myalgia and asthenia. Lymphadenopathy is a typical feature of monkeypox distinguishing it from the early stages of similar diseases like chickenpox, measles and smallpox[11,13].

The skin eruption commonly appears within 1-3 days after the onset of the fever. The rash appears predominantly on the face and extremities sparing the trunk. Lesions can also be seen on the oral mucosa, genitalia, conjunctiva as well as the cornea[14].

The rash evolves in textbook fashion from flat base to macules to papules to vesicles to pustules and crusts which in due course eventually dry up and fall off.

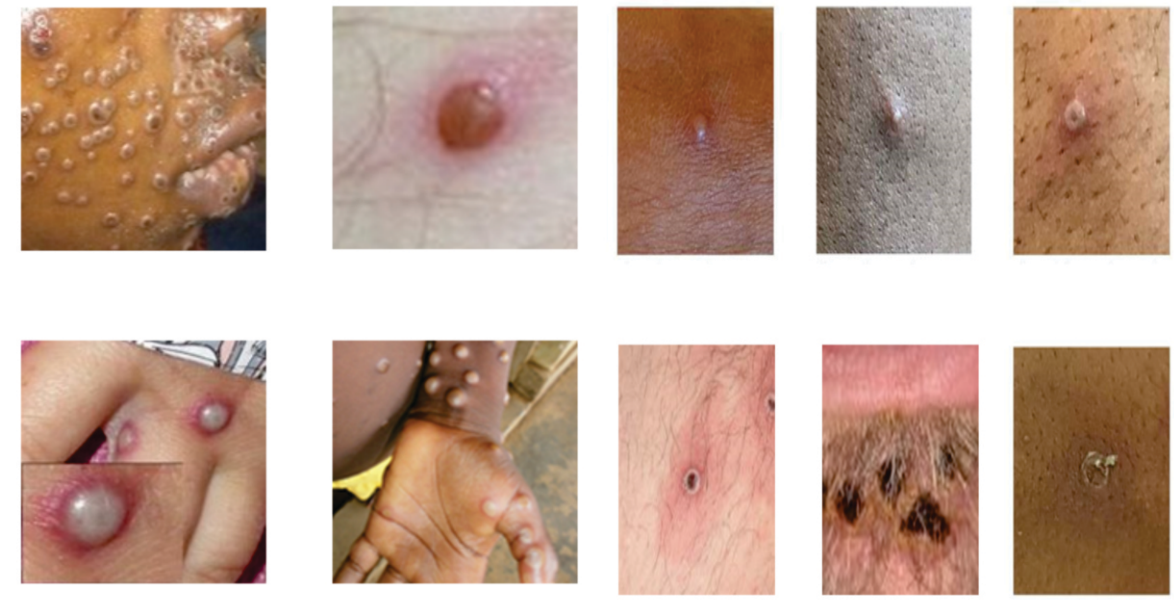

Fig 3: Examples of Monkeypox disease Rashes
Photo credit: UK Health Security Agency

Complications:

Complications of Monkeypox disease include secondary infections, bronchopneumonia, sepsis, encephalitis, and infection of the cornea with ensuing loss of vision. However the extent to which the asymptomatic infection may occur remainsunknown[15].

Lab Diagnosis and Differential Diagnosis:

Polymerase Chain Reaction (PCR) remains the diagnostic modality of choice for the disease. Samples are taken from active skin lesions. PCR is believed to have higher sensitivity even in presence of bacterial contamination[11].A hybridization assay, utilizing probe(MGB Eclipsetrade mark probe), targets envelope protein gene (B6R) and specifically detects Monkeypox virus (MPXV)[16].

Diseases like chickenpox, measles, bacterial skin infections, scabies, syphilis and medication-associated allergies which manifest with rashes serve as important differential diagnoses for the Monkeypox virus disease owing to the presence of classical rashes in the Monkeypox disease too. However the typical rash pattern and presence of lymphadenopathy in prodromal stages of the illness are the characteristic features of the Monkeypox disease[14].

Treatment:

The management of Monkeypox disease is primarily based on providing symptomatic relief and at the same time preventing potentially fatal complications. DNA Polymerase inhibitors like Cidofovir known to be effective in animals are under trial for human use in Monkeypox disease[11]. Recently, a drug Tecovirimat which inhibits **p37**, a highly conserved protein in all orthopoxviruses known to mediate the formation of enveloped virions, has been approved for use against Monkeypox disease in various countries[11,14,17].

United States Food and Drug Administration has also licensed Vaccinia Immunoglobulins (known to be effective against Orthopoxviruses) for effective management and adequate prophylaxis against the fast spreading disease[11].

Vaccines and Vaccination:

Vaccines against Smallpox disease have been demonstrated to be about 85% effective in preventing Monkeypox disease. A still newer vaccine based on a modified, attenuated, Vaccinia virus strain (Ankara strain) was approved for the prevention of Monkeypox in 2019. This vaccine is a third generation smallpox virus and is given in two-doses for which availability remains limited[18,19]. Live attenuated, non-replicating smallpox and Monkeypox vaccine that elicits both humoral and cellular immune response to orthopoxviruses is under clinical trials.

Vaccination is indicated for the prevention of Monkeypox disease in adults who are at high risk of contracting the infection. It has been 40 or more years since all countries stopped routine smallpox vaccination with vaccinia-based vaccines that protected against Monkeypox. The population unvaccinated against small poxwhich is born after 1980 is more susceptible to Monkeypox virus infection.

Dosing:

a) Subcutaneous Administration: 0.5 mL SC x2 doses; 4 weeks apart

b) Intradermal Administration: 0.1 mL ID x2 doses; 4 weeks apart (Emergency Use Authorization) [18]

Adverse Effects:

Local side effects include injection site pain, redness, swelling, induration and itching. Systemic manifestations include muscle pain, headache, fatigue, nausea and chills.

Pregnancy:

Human data are insufficient to inform vaccine-associated risks in pregnancy.Studies in animals revealed no evidence of harm to the fetus.

Lactation:

Unknown if excreted in human milk; data are not available to assess vaccine effects in breastfed infants or on milk production/excretion[18,19,20].

Prevention:

Forewarned is forearmed therefore educating people about risk factors and mitigating the exposure to the virus to minimum are chief strategies for prevention. Due to reported human-to-human transmission by respiratory secretions, isolation of the diseased and Quarantine of those exposed also seems as a strong strategy.

The Ministry of Health and Family Welfare (MoHFW), Government of India has already released guidelines on the detection and management of Monkeypox disease. The National Institute of Virology (NIV) in Pune has been designated as nodal laboratory for Monkeypox virus testing in India[11].

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CASE REPORT

Off Pump Total Arterial Coronary Revascularization in Dextrocardia with Situs InversusTotalis: A Case Report

Hemlata Verma*, Anula Sisodia*, R M Mathur, Himanshu Mahala*, Vaibhav Gupta***, Deva Ram Chaudhary***, Harnish Singh Bhatia*****

ABSTRACT

Dextrocardia with situs inversus is a rare entity and if not associated with any congenital heart disorder then these persons lead a normal life. CABG in dextrocardia is technically a challenging task. Here we are reporting a case of off pump total arterial CABG in a patient with dextrocardia with situs inversustotalis with regard to technique and modifications for the surgery.

Key words: dextrocardia, situs inversustotalis, CABG, off pump, congenital, heart.

INTRODUCTION

Dextrocardia is usually associated with congenital heart diseases and if not, then, it behaves normally like levocardia with regard to natural history. Dextrocardia with situs inversus behaves more like normal than dextrocardia with situs solitus.

Coronary artery disease after age 40 year is very common in normal levocardia heart (i.e. apex of heart is on left side with atrial situs and main mass of heart is lying left of the midline) although may occur in younger age group. Dextrocardia is not exception for this yet an uncommon entity.

Dextrocardia is associated with surgical challenges eg, position of surgeon, cannulation for CPB, conduit selection, graft configuration, sequence of anastomosis etc.

Here, we are presenting a case of situs inversustotalis with dextrocardia with TVD in which total arterial revascularization was done off pump.

PATIENT PROFILE

59 year old female presented to us with history of recurrent angina right side of chest radiating to right arm for last 3 years and an episode of acute myocardial infarction 3 months back. Coronary angiography was done which showed Tripple vessel disease. She was referred to us for surgery.

She was non hypertensive and, non diabetic with no history of other chronic illness.

Patient was thoroughly evaluated with routine blood investigations, viral markers, and covid test. Her chest x-ray (Picture/illustration 1) showed dextrocardia with situs inversus. Liver was under left hemidiaphragm and fundal shadow was under right hemidiaphragm.

HRCT thorax for covid infection was also negative

Electrocardiography (Figure 2) was typical of dextrocardia and Coronary artery disease i,e. inverted P wave with negative QRS deflection in lead 1 and upright P wave with positive QRS deflection in lead avR and poor progression of R wave in left chest leads.

Findings suggestive of Coronary artery disease were presence of q wave in lead V2, V5, V6, ST depression with T wave inversion in lead V4R, V5R, and V6R.

2D echo (Figure 3) showed situs inversus with dextrocardia with normal chamber dimensions. Superior vena cava and Inferior vena cava were on left side of spine and draining into left side placed Right atrium. Pulmonary veins draining into right sided left atrium. Apex was lying on right side of midline. Morphologic right ventrical was on left side of midline and morphologic left ventricle was on right side of midline. Aorta was lying on right side of spine and ascending aorta was situated on left side of main pulmonary artery with ventriculo arterial concordance. There was grade II left ventricular diastolic dysfunction with normal systolic function (Ejection fraction – 55 %).

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Coronary angiography (Figure 4a,4b,4c,4d) revealed mirror image coronary artery pattern with left arterial system was lying on right side of main mass and right coronary artery was on left side of main mass. There was approximately 95% stenosis in proximal Left anterior descending artery, obtuse marginal 1, proximal right coronary and distal right coronary artery just before crux.

Ultrasonography abdomen confirmed the finding of abdominal situs that is liver was on left side and spleen was on right side.

There was moderate to severe obstructive respiratory dysfunction and both carotid arteries were normal on colour Doppler study.

With negative corona profile and HRCT thorax, patient was taken for surgery.

Her both radial arteries were checked with Allen test for harvesting IMA and Radial artery.

INTRA OPERATIVE PROFILE

ECG electrodes were fixed on back side of right chest wall. Patient was anesthetized with fentanyl, sodium thiopental, and rocuronium and maintained with sevoflurane and intermittent doses of fentanyl and rocuronium. Arterial and venous monitoring lines were placed and urinary catheterization was done.

Chest was opened with midline sternotomy, pericardium was opened and hitched up. Anatomy (Figure 5) of heart was consistent with mirror image pattern with right aortic arch. LAD was situated on right side, OM was on right lateral surface, RCA was on left side, and PDA was situated on inferior wall left side.

After inspection of anatomy, RIMA (Figure 6a,6b,6c), LIMA (Figure 6d,6e), and LEFT RADIAL (Figure 6f) artery were harvested on 1 mg/kg heparin dose with ACT more than 280 seconds. RIMA was used as pedicled graft and LIMA and RADIAL aretery were used as free graft. Patient was heparinized again to achieve ACT more than 300 seconds. Procedure was done off pump and with surgeon standing on right side of the patient. Proximal anastomosis (Figure 7) were done first with LIMA was anastomosed to right lateral surface and RADIAL artery was anastomosed to left anterolateral surface of ascending aorta with 7/0 prolene in continuous manner. Patency was checked.

Stabilizer was fixed on inferior arm of retractor and LAD (Figure 8) was stabilized. Exposure was improved with hitching up the pericardial stay taken in between the right superior and inferior pulmonary vein. A 5/0 prolene control sling was taken around LAD proximal to the proposed site of anastomosis. Adequate sized LAD arteriotomy was done and shunt of 1.75mm size was placed inside the arteriotomy. RIMA was anastomosed to LAD as pedicled graft with 7/0 prolene in tension free manner. RIMA graft was fixed to epicardium. Now stabilizer was fixed on inferior arm of retractor near its right arm and OM1 artery (Figure 9) was fixed. LIMA was anastomosed to OM1 in similar manner as LAD grafting. For PDA exposure, octopus was stabilized at right arm of retractor near its inferior portion and RADIAL artery was anastomosed to PDA (Figure 10) similarly. Shunt size for OM1 and PDA was 1.5mm.

After completion of the procedure heparin was reversed. Hemodynamically patient's parameters were remain stable throughout the procedure therefore no inotropes were required. Chest was closed in usual manner after inserting bilateral pleural and mediastinal drains. She was shifted to ICU on nitroglycerine infusion.

Postoperative course was uneventful and she was extubated in 6 hrs. Patient was discharged on day 7.

DISCUSSION

Dextrocardia with situs inverses is an unusual congenital abnormality with an incidence of 1: 12,000 [1].

It is subjected to coronary artery disease as in normal population with levocardia and situs solitus[2].

Literature shows that dextrocardia was first reported by anatomist surgeon Hieronymus Fabricius in 1606[3], and Marco Aurelia Severinus in 1643 reported dextrocardia with situs inversus[4]. In adults, mostly it is dextrocardia with atrial and abdominal situs inversus and this is rarely associated with congenital cardiac anomalies.

CABG was first done in dextocardia in 1980[5].

Performing surgery when standing on right side of patient in dextrocardia is technically difficult and doing it off pump is like a pimple has grown upon an ulcer. Some issues have to be sorted out during surgery like where should surgeon stand, doing it off pump or on pump, cannulation strategies, conduits for LAD, OM, PDA, which coronary artery is to be anastomosed first or sequence of anastomosis, position of stabilizer etc.

Selection of conduit and configuration of graft is very important in CABG and it becomes very crucial in dextrocardia because now main mass of heart is on right side. RIMA can easily reach upto LAD in this situation; however Kuwata[6] and chakravarthy[7] used skeletonised LIMA in situ for LAD.

In most of the case reports and paper presented so far it was shown that one arterial graft, which is usually RIMA for LAD was used and for the rest of coronaries venous grafts were used. Kuwata T et al reported a case where he performed total arterial surgery off pump[6]. We decided to do a total arterial revascularization off pump. RIMA was used as pedicled graft for LAD, and LIMA and RADIAL artery conduits were used as free grafts for OM and PDA. Pancelet did total arterial revascularization with the help of cardiopulmonary bypass[8].

Usually RIMA is anastomosed to LAD, considering its proximity to rightward LAD.

In dextrocardia, obtuse marginal vessels are more anterior and a conduit with short length can be used, therefore it is more suitable to do total arterial revascularization as they are less prone to kinking than SVGs[9].

Because of position of the heart in dextrocardia it is preferred to stand on left side of the patient for the coronary anastomosis as it is easy to graft LAD and OM exposed by retracting the heart to left. Few cases are reported in which surgery was done when standing on right side[10] and we found that this surgery can be done with standing on right side without any difficulty.

Texas study showed that in dextrocardia, most surgeons were on the left side, cardiopulmonary bypass was used frequently, and usually one arterial and rest were venous grafts were used[11].

When using cardiopulmonary bypass position of aortic arch is very important to place the arterial cannula and usually in dextrocardia it is right aortic arch[12]. Presence of SVC draining into coronary sinus has to be checked for venous cannulation and retrograde cardioplegia[13].

SUMMARY

Dextrocardia poses challenges to surgeons but slight modifications make the grafting easier. Although in our case we did not change the surgeon's position and completed the whole procedure as we do CABG in levocardia without any difficulty. By doing total arterial revascularization without the help of cardiopulmonary bypass we could do the best for the patient in our scenario.

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LIST OF ABBREVIATION

CABG	:	Coronary Artery Bypass Grafting
CPB	:	Cardiopulmonary Bypass
CAD	:	Coronary Artery Disease
TVD	:	Triple Vessel Disease
HRCT	:	High Resolution Computerized Tomography
IMA	:	Internal Mammary Artery
RIMA	:	Right Internal Mammary Artery
LIMA	:	Left Internal Mammary Artery
ECG	:	Electrocardiogram
LAD	:	Left Anterior Descending Artery
OM	:	Obtuse Marginal
RCA	:	Right Coronary Artery
PDA	:	Posterior Descending Artery
ICU	:	Intensive Care Unit
SVG	:	Saphenous Vein Graft
SVC	:	Superior Vena Cava

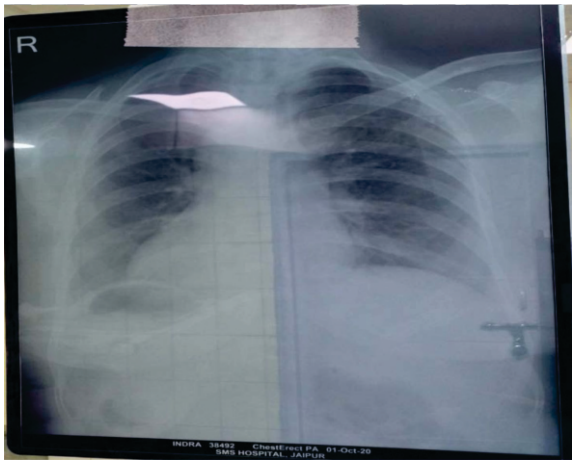

Figure 1: Chest X-ray

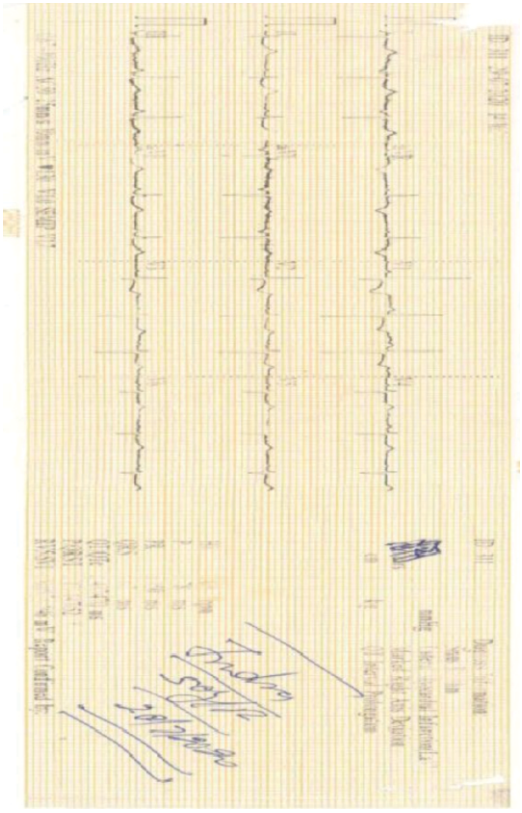

Figure 2: ECG

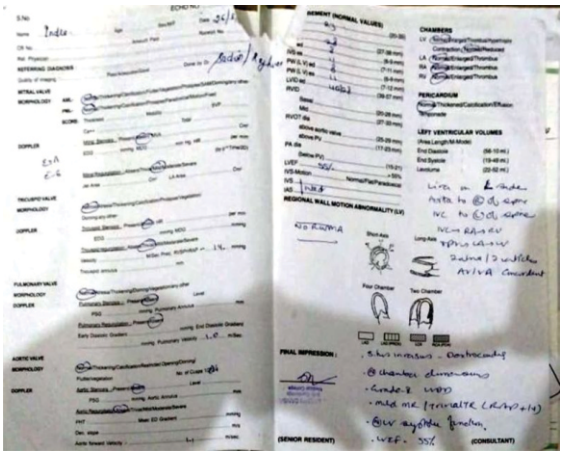

Figure 3: 2D Echo Report

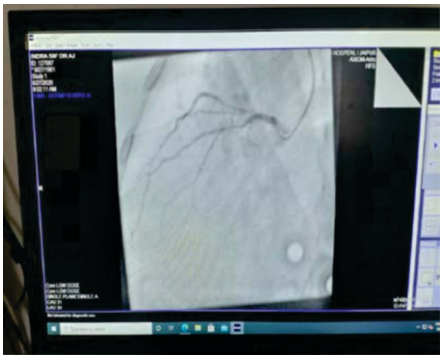

Figure 4a: LAD and Left Circumflex Artery

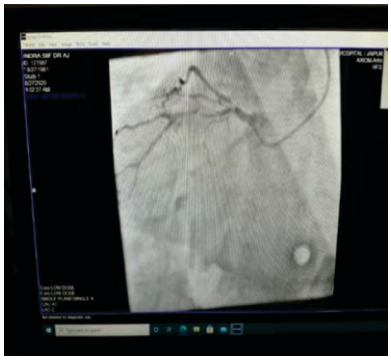

Figure 4b: LAD and Left Circumflex Artery

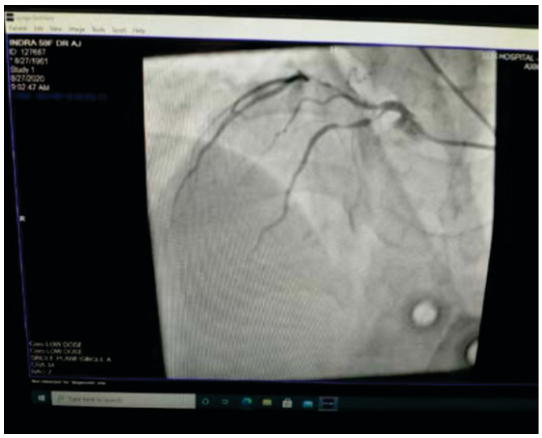

Figure 4c: LAD and Left Circumflex Artery

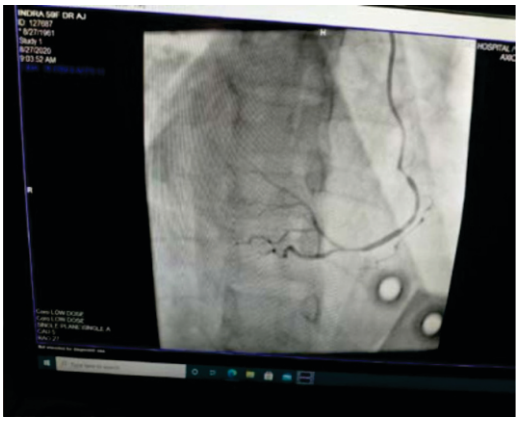

Figure 4d: Right Coronary Artery

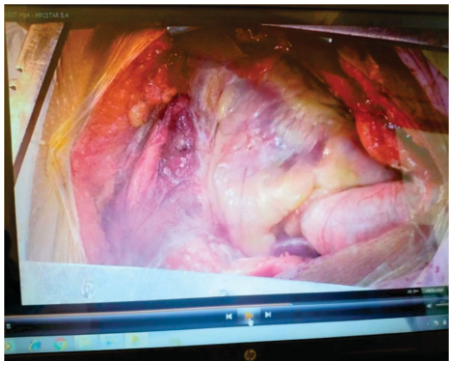

Figure 5: Anatomy

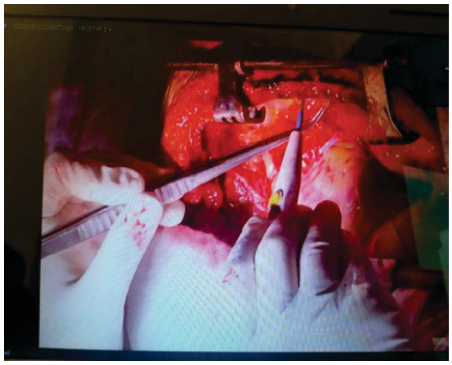

Figure 6a: RIMA Harvesting

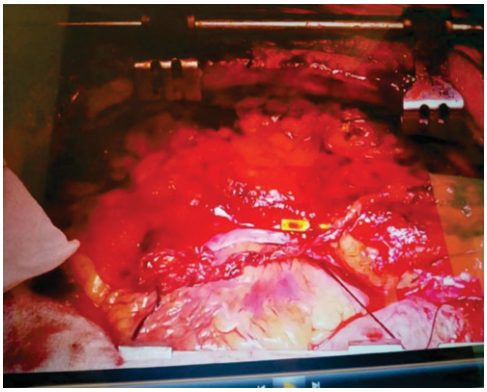

Figure 6b: RIMA Graft

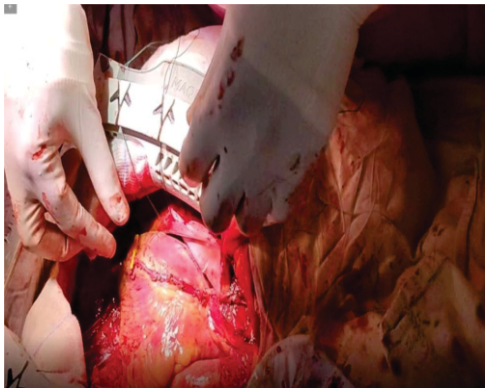

Figure 6c: RIMA Graft

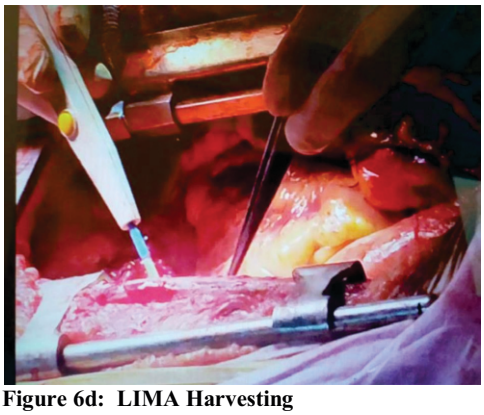

Figure 6d: LIMA Harvesting

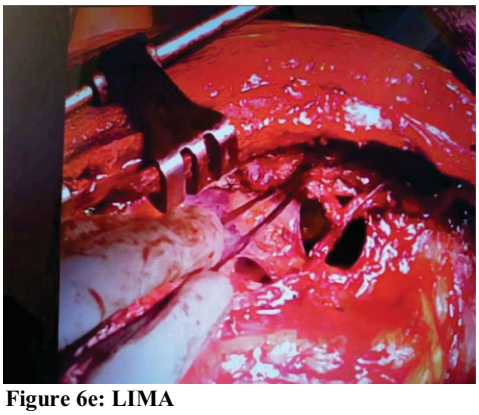

Figure 6e: LIMA

Figure 6f: Left Radial Artery Graft Harvesting

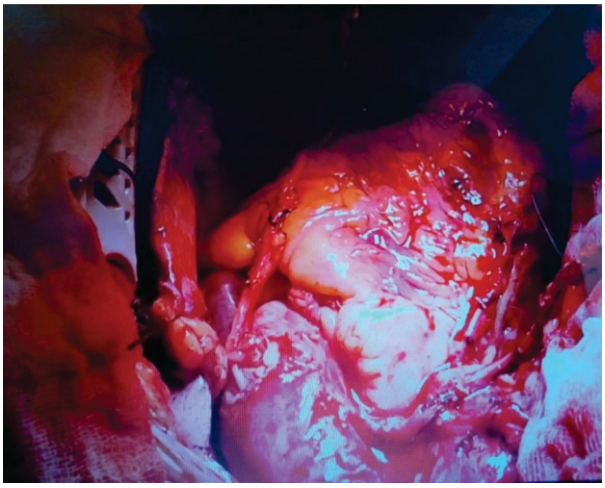

Figure 7: Proximal Anastomosis

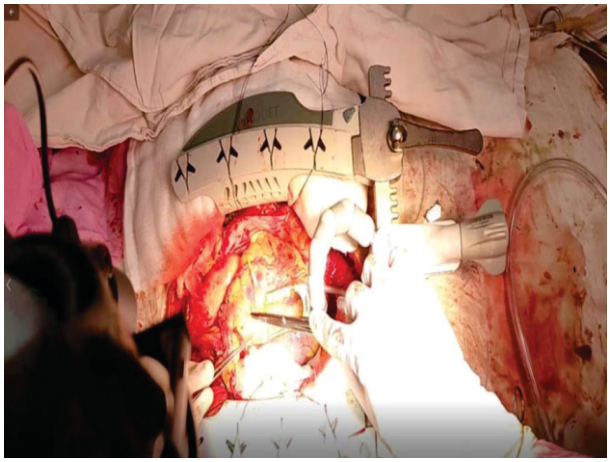

Figure 8: LAD Grafting

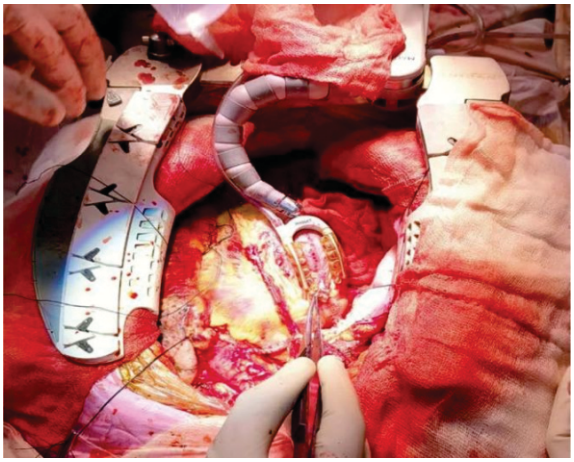

Figure 9: OM 1 Grafting

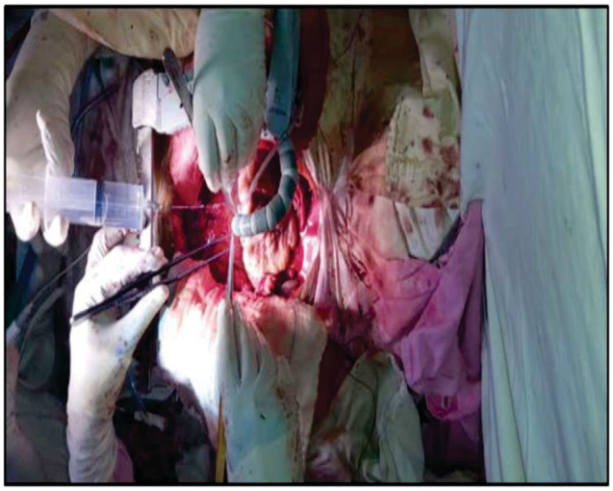

Figure 10: PDA Grafting

CASE REPORT

An Unusual Case Of Abdominal Wall Hematoma After Renal Allograft Biopsy

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ABSTRACT

Renal biopsy is often required to diagnose allograft dysfunction. Although it's a safe procedure, complications do occur. We report an unusual case of anterior abdominal wall hematoma after renal allograft biopsy. The patient developed progressive swelling over allograft site. Initially patient was managed conservatively followed by percutaneous drain. Color doppler evaluation of overlying abdominal wall can help to look for significant vessels before biopsy procedure and avoid such complications.

Key Words: Renal biopsy, Allograft, Hematoma.

INTRODUCTION

Renal allograft biopsies are done for evaluation of allograft dysfunction after ruling out pre-renal and post renal causes. The use of ultrasound guidance has reduced the chances of significant bleeding. This is a case report of enlarging abdominal wall hematoma after percutaneous renal allograft biopsy which was managed with an abdominal wall drain.

CASE REPORT

A 46 year old female who underwent renal transplantation 12 years ago presented to our hospital with asymptomatic increase in serum creatinine. Systemic examination was unremarkable. Tacrolimus levels were normal. Renal biopsy was done, after ruling out pre-renal and post renal causes, for evaluation of graft dysfunction.

Renal allograft biopsy was done under USG guidance from the upper pole using an 18 G needle after checking the coagulation parameters. A tender swelling developed at the biopsy site 4-6 hours after the procedure which was gradually increasing in size. There was no associated hematuria. USG showed organised collection of 139x70 mm around tranplanted kidney, likely hematoma. Doppler study didn't show any evidence of pseudoaneurysm or arteriovenous fistula. Patient's hematocrit dropped and hence blood transfusions were given. The hematoma further increased in size the next day and CT abdomen was done which was suggestive of large hypodense collection in lateral abdominal wall (fig 1,2). CT angiography was done to look for the site of bleed. The bleeding vessel could not be identified.

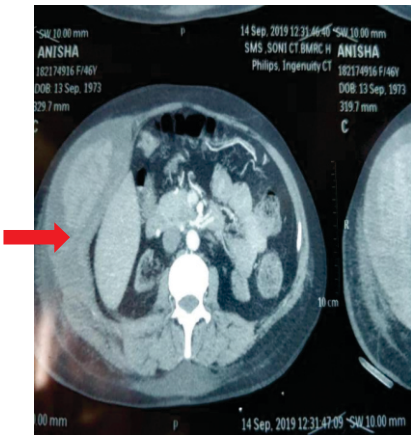

Fig 1

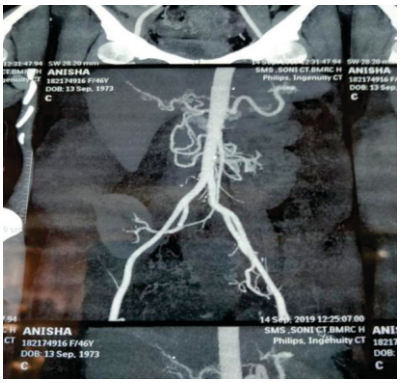

Fig 2

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The patient was managed conservatively with bed rest and regular monitoring of hematocrit. Hematoma stopped expanding 3 days later but due to persistent tenderness abdominal wall drain was inserted for early drainage of hematoma. Patient responded well to this management and was kept on regular follow up.

DISCUSSION

Renal biopsy is usually recognized as a safe procedure in native and transplant kidney.[1,2] Biopsy procedures of renal allograft are known to have a higher incidence of gross hematuria, hematoma formation, hemoperitoneum and AV fistulae.[3,4] While minor complications usually resolve spontaneously, major complications require further treatment, sometimes even evacuation of hematoma or nephrectomy.[5]

Injury to arteries in abdominal wall can occur during paracentesis,chest tube insertion and rarely following percutaneous biopsy.[6,7,8] The arteries most commonly injured are the branches of superior epigastric artery, inferior epigastric artery or circumflex iliac artery.[7,8,9] In this case we were suspecting an injury to anterior abdominal wall vessel which was responsible for the formation of hematoma although the exact site of bleed could not be identified. Knowledge of vasculature of anterior abdominal wall is useful in such circumstances and Doppler study can help to identify the source of bleed.

CONCLUSION

Abdominal wall hematoma is a rare complication of allograft biopsy. Although there have been quite a few case reports of renal and perirenal hematoma after allograft biopsy, anterior abdominal wall hematoma has been reported scarcely. The person performing biopsy should be aware that injury to abdominal wall vessels can occur during the procedure and these should be evaluated as the cause of bleed if no renal parenchymal lesion is obvious. A color Doppler evaluation of the abdominal wall overlying the allograft can be useful to diagnose such cases.

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CASE REPORT

Lesch Nyhan Syndrome

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INTRODUCTION

Lesch-Nyhan syndrome (LNS) is a rare inherited disorder caused by a deficiency of the enzyme hypoxanthine-guanine phosphoribosyl transferase-1 (HGPRT-1), produced by mutations in the HPRT gene located on the X-chromosome. LNS affect about one in 380,000 live births. The disease process mainly affects the male child and females are asymptomatic carriers. HGPRT deficiency leads to the characteristic triad of features: Hyperuricemia, Spectrum of neurological dysfunctions, and Cognitive and behavioural disturbances[1].

Self-injuring behaviour (SIB), it is rarely a presenting feature but eventually develops in nearly all cases. Affected patients are cognitively impaired and have behavioural disturbances that emerge between two and three years of age[2]. Overproduction of uric acid "orange sand" in the diapers - uric acid crystalluria is due to HGPRT deficiency that causes a build-up of uric acid in all body fluids. Increased synthesis and decreased utilization of purines leads to high levels of uric acid production. This results in both high levels of uric acid in the blood and urine, associated with severe gout and kidney problems such as renal failure or frank hematuria-nephrolithiasis[3,4]. Clinical manifestations according to age: At birth- no apparent neurologic dysfunction. After several months developmental rretardation and neurologic signs become apparent. Before 4 months-hypotonia, recurrent vomiting and by age of 8-12 months-extra pyramidal signs prominent. The age at onset of self-injury may be as early as 1 year and occasionally as late as the teens.[5,6]

Physical examination may show: growth retardation, cognitive dysfunction and average IQ=60, all patients are wheelchair bound, self-mutilation like partial amputations of the fingers, lips, tongue, or oral mucosa, scarring from repetitive self-abrasion or hitting, in addition due to high levels of uric acid gouty arthritis and arthritic tophi may be seen. Lab. Studies can show hyperuricemia, hyperuricosuria, macrocytic anaemia. The diagnosis of Lesch-Nyhan syndrome may be confirmed by a thorough clinical evaluation, including a detailed patient history and specialized blood tests. The absence of the HPRT enzyme in cells from any tissue confirms the diagnosis. Molecular genetic testing for the HPRT1 gene is available to determine the specific disease-causing mutation. Carrier testing for Lesch-Nyhan syndrome is possible using molecular genetic testing[5,6]. Prenatal diagnosis and preimplantation genetic diagnosis are possible if the disease causing HPRT1 gene mutation has been identified in an affected family member. Prenatal diagnosis can also be done by enzyme analysis. We report a case of LNS in a 22months old child who presented with buccal mucosal ulcers secondary to self-bites.

CASE REPORT

A 22 months old boy presented to our institution with history of motor development delay, dystonia and excessive irritability since 4 months of age. Self biting of fingers since 2 months, buccal mucosal ulcers since 20 days. He was the third child of healthy nonconsanguineous parents. There was no history of similar illness in first- degree and second-degree family members. The prenatal and neonatal periods were uneventful. At admission his length, weight and head circumference were 83 cm (–1 SD), 9.2 kg (–2 SD), and

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48 cm (median) respectively. By 6 months of age, his head control was poor and he had abnormal dystonic movements and extensor spasms with marked hypotonia. Laboratory investigations including hemogram, thyroid function tests, liver function tests, computed tomography scan of cervical region were within normal limits, Brain magnetic resonance imaging (MRI) showed no signs of cortical atrophy or abnormal intensities except for arachnoid cyst, MR Spectroscopy was found to be normal. The patient developed hyperuricemia (uric acid [UA], 10.1 mg/dL) and increased urinary UA/creatinine ratio, 4.4 [control range2.0]). EEG-Normal, Ammonia-24micro mol/L (Control range-54, Lactate-13.0mg/dl (Control range 4.5-19.8)

Child was treated with physiotherapy. He attained roll over at 14months of age and started crying for his daily needs. But he started biting his own fingers at 19months of age with developmental delay, we suspected the possibility of LNS. Laboratory investigations showed hyperuricimia, increased urine uric acid to creatinine ratio. Finally the diagnosis was confirmed by clinical exome sequencing. The report shows hemizygous nonsense variation in exon7 of HPRT1 gene (ChrX:g.134498412134498412C>T;Depth:82x) that results in a stop codon premature truncation of protein at codon 170(p.Arg170Ter;ENST00000298556.8) was detected. To know whether it's complete or incomplete HGPRT deficiency levels to be determined. No such facilities are available in India. Hence we are planning to send the sample to United Kingdom.

On follow-up child is showing remarkable improvement in self-injurious behavior. Rest of clinical picture remains same. Beside the pharmacotherapy child is also receiving physiotherapy. Child was referred to dentist and he prescribed him tooth guard for protection of tongue, gums and teeth.

DISCUSSION

LNS is a rare disorder but it can easily be diagnosed by Investigations like serum uric acid and urine uric acid to creatinine ratios available at most of the diagnostic centres.

Diagnosis of LNS is based on HPRT enzyme activity, preferably measured in live cells such as cultured fibroblasts, and on molecular genetic techniques demonstrating the gene mutation. Results might provide predictive clues about ultimate disease severity in addition clinical and biochemical (hyperuricemia and hyperuricosuria), together with psychomotor signs of HPRT deficiency. An orange crystal in the diapers of a newborn is one of the early clues of the disease that may be the observed. Overproduction of uric acid may lead to the development of uric acid crystals or stones in the kidneys, ureters, or bladder. Such crystals deposited in joints later in the disease may produce gout-like arthritis, with swelling and tenderness.

Self-InjuryBehaviour (SIB) in LNS can be differentiated from SIB associated with autism or developmental disabilities by its sudden and more severe onset. Allopurinol will lower uric acid levels to normal but does not affect the behavioral aspects of the disease. Treatment options for management of SIB are physical restraints, behavioral, and pharmacological treatment (benzodiazepines) but the success rate is limited[7]. Physical restraints have been the sole reliable resource for preventing SIB. Cloth body restraints, cloth mittens, and plastic arm splints have all been useful in reducing the frequency of injury. Drastic measures, such as removal of the teeth or provision of tooth guards, are often taken to prevent further tissue damage. However, in many cases even with physical restraints, self-injury continues. Our patient's self-injurious behavior controlled with both pharmacotherapy and physical restraints. The aggressive behaviour usually wanes in patients older than 10-12 years of age. Patients with LNS usually die in their late second or third decade. The cause of death is renal failure or infections that are a result of decrease in lymphocyte and immunoglobulin G levels. With optimal care, few patients live beyond 40 years and most are confined to a wheelchair[8].

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